CONNECTICUT RIVER WATERSHED COUNCIL
The River Connects Us
15 Bank Row, Greenfield, MA 01301

April 6, 2012

Kathleen Baskin
Director of Water Policy
Executive Office of Energy and Environmental Affairs
100 Cambridge Street, 9th Floor
Boston MA 02114

Re: Comments on the SWMI Framework dated February 3, 2012

Dear Ms. Baskin,

We have been following the Sustainable Water Management Initiative (SWMI) process over the past few years and wish to submit comments on behalf of the Connecticut River Watershed Council (CRWC). We appreciate the significant work that has gone into this from multiple state agencies and recognize that this is politically and technically a very complex and difficult issue. Overall, we like some of the components and are very supportive of moving forward to make regulations.

We have signed on to the comment letter submitted by the Massachusetts Rivers Alliance, of which we are an organizational member. Our letter aims to either offer commentary particular to our perspective that we have not seen in other letters, or focuses on the elements that we find to be very important and we'd like to emphasize further.

The Connecticut River and its tributaries (including the Deerfield, Millers, Chicopee, and Westfield large basins and also smaller tributaries within the mainstem watershed) take up approximately one-third of the land area of Massachusetts. The rivers in our watershed are used as drinking water reservoirs for the two largest municipal systems in the state (MWRA and Springfield Water and Sewer Commission). They are also heavily manipulated for hydropower use and flood control, and are also used as cooling water for power plants, discharge for wastewater treatment, large and small irrigation, smaller municipal systems, and much of the watershed uses private wells for drinking water. The need to balance societal needs and uses of the water vs. maintaining as natural a river ecology as possible is a key component of our work as a watershed organization. We believe when there are regulations in place that ensures this balance, our quality of life, the environment, and our economy are enhanced. We have been looking forward to the outcomes of this process.

Focus of the effort

With regard to the Water Management Act in particular, we have reviewed several new permits over the past five or so years. They have been associated with a power plant and two commercial agricultural companies. Two were direct surface water withdrawals, and one was groundwater. Two towns have gone through permitting for redundant wells. Given our experience with a variety of water users and the stated purposes of the SWMI which is, inter alia, "the development of a water allocation program that examines contributing causes and solutions to satisfying water needs while recognizing ecological issues such as low streamflow" as well as to "inform MassDEP's implementation of the Water Management Act and its new determination of Safe Yield, and to examine application of the new methodology to other

water-related statutes and requirements, including possible incentives for integrated water management programs at the regional and municipal level."

From our perspective then, we are disappointed that much of this effort has focused mainly on permitted municipal groundwater withdrawals. For example the types of permits we have reviewed will, in our understanding, only be evaluated using the modified sustainable yield number and not the more robust stream flow criteria. We were hoping for SWMI to take a more holistic look at regulating all withdrawals and taking ecological issues (which might include other kinds of hydrologic modification) into consideration. We have evaluated this SWMI proposal in light of these other water uses and are not confident that it adequately considers them in a sustainable water management package.

Biological Categorization of Streams and Streamflow criteria

The biological categorization of streams and the draft streamflow criteria presented in the SWMI framework are the most exciting parts of the SWMI proposal, and are entirely new concepts to water management in this state. We think that the work put into the studies are incredible, and has capitalized on the best science and working across multiple agencies. We also see a need to have a regular evaluation (such as every 5 or 10 years) to see how each sub-basin is doing and what category it is in.

Indeed, CRWC sees the development of this tiered classification based on biology as an important first instance of a tiered aquatic life use framework for the classification of surface waters. The Council strongly encourages the DEP to continue this work and begin the creation of a complete framework of biological water quality criteria for all surface water uses that includes macroinvertebrates and other biological indices. The work of the SWMI process to create these criteria ably demonstrates the power of using biological indicators of ecological health rather than more traditional chemical or physical indicators.

CRWC wholeheartedly supports the use of streamflow criteria to be used in Water Management Act implementation.

<u>Incorporating other flow issues</u>

We understand the basis behind the final USGS report (Armstrong et al., 2011), but find it unfortunate that the criteria only addresses percent alteration from groundwater withdrawal. Though we think preserving adequate seasonal flows has been an important focus of the SWMI effort, we also wonder if other types of flow alteration should at least be considered and potentially incorporated into some of the components.

In her paper titled, *Response of physical processes and ecological targets to altered hydrology in the Connecticut River Basin*, Zimmerman (2006, attached) concluded, "Overall, the major causes of hydrologic alteration in the Connecticut River Basin are dams (mainly for flood-control and hydropower production) and water withdrawals." She cited a study in which the fish communities present in the West River basin in southern Vermont was very different than that of the Deerfield River in Vermont and Massachusetts, which is subject to within-day flow variability from hydropower projects. Another draft publication from The Nature Conservancy (attached) analyzes the potential for hydrologic alteration in the Connecticut River tributaries, and shows that the Deerfield and Chicopee basins are "severe" and the Millers is "high." See below.

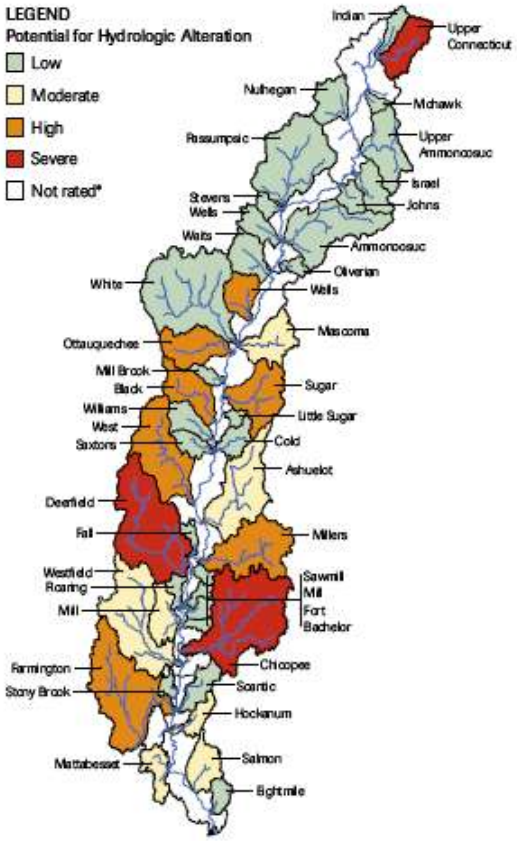

Figure 4. Potential for hydrologic alteration in Connecticut River tributaries, based on the number and storage capacity of dams within each watershed. Only major tributaries (those with a drainage area exceeding 80 square miles), are included in this analysis. See Zimmerman and Lester (2006).

The severely altered basins of the Deerfield or Chicopee come out of the biological category process looking not that bad, which makes us wonder if the sub-daily fluctuations should somehow be considered in this process. After all, water withdrawals coupled with daily low flow excursions could exacerbate effects of low flows, yet it would never turn up in flow averages.

This same TNC publication concludes as a result of this analysis that "[i]t is important to characterize and quantify all withdrawals and diversions currently exempt from environmental review, relate results to instream flow and ecosystem health, and integrate these results into water resource policies." SWMI has not yet evaluated this aspect of flow alteration and we look forward to that occurring. We do recognize that the introduction of hydrologic modifications from dam operation is a significant issue and adds an additional, but important, facet to stream flow regulation.

Water Management Act permitting

The SWMI framework introduces a very complicated set of changes to the Water Management Act permitting process. We hope that the development of regulations will make it less so. SWMI also only covers permits, groundwater withdrawals, and municipal water withdrawals. As we have noted above in our part of the state, this leaves out a great many of the regulated water withdrawals.

Baseline

The baseline concept as presented in the SWMI downgrades the strengths of the streamflow criteria. Trying to take into account registrations, permits, actual use vs. permitted us, is all too convoluted and is a distraction from the issue of what is happening in the water body. We therefore think the baseline should be based on the actual flow level categories in a sub-basin, regardless of source of alteration. If the flow level is a 4 (25 to <55% alteration), any regulated withdrawals would need to make reasonable efforts to reduce impacts to the water source. If a new request comes in, it would be evaluated for additional alteration impacts. In the meantime, other alterations may take place such as the addition of pervious surface in the sub-basin. This may also cause the sub-basin to change categories, but currently there is no regulatory process that limits or prevents the addition of pervious surface in a sub-basin. If streamflow criteria were incorporated into surface water quality standards, the flow-impaired sub-basin could be handled in a manner similar to the way TMDL's are prepared for river segments that are impaired for a pollutant.

If somehow the concept of baseline needs to remain similar to its current concept, it should incorporate the same baseline that was used in the USGS studies (Armstrong, 2010 and 2011) to generate the streamflow categories in the first place. According to page 5 of this study (online at http://pubs.usgs.gov/of/2010/1139/pdf/ofr2010-1139.pdf), the authors used monthly median water use estimates for 2000-2004. We therefore recommend using 2000-2004 usage estimates as baseline without any consideration of a facility's existing permitted or registered volume. We do not understand how granting unused permitted volumes of water toward a baseline calculation is consistent with this SWMI initiative, which is trying to introduce standards and criteria that are based on aquatic life use goals.

Transition Rule for Surface Water

Given that the largest water supply sources in the Commonwealth are surface water withdrawals, we are disappointed that this two-year process has not begun to address surface water withdrawals. Again, if streamflow criteria are based on flow levels regardless of type of alteration, and if baseline is based on flow numbers, surface water withdrawals would not have to go through a separate process.

Preliminary Permitting Steps

In the draft framework, it is confusing as to whether the term "basin" refers to the large basins as discussed in the safe yield concept of the smaller sub-basins as discussed in the streamflow criteria material.

Safe Yield

The concept of safe yield has been both important and problematic in its implementation under the WMA. We had been looking forward to a scientifically-based and consistent framework for calculating safe yield to come out of the SWMI process. For the reasons outlined in the Massachusetts Rivers Alliance letter, the safe yield as proposed will not sustainably manage river systems from an ecological point of view. Like other organizations, we prefer an approach that incorporates seasonal flows and smaller basins.

The concept of stream flow criteria also included in this SWMI framework could offer more hope in actually achieving flow and habitat protection, but since that concept as proposed only covers permitted, groundwater, municipal withdrawals at this time, safe yield remains the only tool for covering all regulated withdrawals, and so we feel that it should be protective of streamflow.

We recommend that DEP put safe yield through a similar kind of peer review process that the streamflow criteria papers have received, and see how it holds up under review of the experts (some of this could have been done through the technical subcommittee, but that committee was apparently not asked to weigh in on the safe yield proposal before it was unveiled). We think there are ways to make changes to make it more protective of rivers.

Reservoir storage credits

The SWMI approach to giving reservoir storage credits has a number of problems. We note that large drinking water reservoirs such as those given credit in this safe yield proposal do provide added safety in a drought year for drinking water supply, which should certainly be part of the safe yield equation, but it means virtually nothing for stream ecology or hydrology, and this has not been taken into account. As noted in the table on page 8 of the SWMI Framework Appendices 020312, the two reservoirs in the Commonwealth that have downstream release requirements are Quabbin/Ware and Wachusett. The release requirements for those reservoirs are not based on ecological flow requirements of the river systems, so we contend that the safe yield approach for reservoir credits does not take into account ecological health of river systems.

Other factors

We suggest there be a way to create an environmental protection factor that would take into account private water withdrawals that don't have permits or registrations, sub-daily fluctuations, and unpermitted irrigation withdrawals when considering the safe yield of a basin.

Conclusion

The Council appreciates the significant work and resources that have been forward by the DEP to initiate the SWMI process. We recognize that this is a very difficult issue and the DEP has handled this process in a manner that has significantly improved the technical basis of any proposed regulations. We look forward to participating in the pending rulemaking process.

Thank you for the opportunity to comment. If you would like to contact me, I can be reached at 413-772-2020 x. 205 or adonlon@ctriver.org.

Sincerely,

Andrea Donlon
River Steward

ATTACHMENTS:
TNC draft Connecticut River flow study publication
Zimmerman (2006) paper